Claims

What is claimed is:

5   1. A method of determining whether an ADIP unit is included in a calculation result,
the method comprising:
performing a first determining process by calculating a first bit count based on a
sampling signal and an ideal bit stream; and
comparing the first bit count with a first critical value to determine whether the
10   ADIP unit is included in the calculation result;
wherein when the first determining process related to the first bit count is not able
to determine whether the ADIP unit is included in the calculation result, a second
determining process is performed based on the sampling signal and the ideal bit
stream.
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2. The method of claim 1 further comprising:
generating a non-phase-modulated target clock signal based on a phase-modulated
input signal; and
generating the calculation result by performing an XOR operation over the target
20   clock signal and the input signal.

3. The method of claim 2 further comprising:
sampling the calculation result at twice the frequency of the target clock signal
to generate a sampling signal.
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4.   The method of claim 1, wherein the first bit count is generated by performing an
XOR operation to count the number of bits having different logic levels between the
sampling signal and the ideal bit stream.

30   5.   The method of claim 1, wherein when the first bit count is larger than a first
critical value, it is determined that the ADIP unit is not included in the calculation
result.

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6. The method of claim 1, wherein when the first bit count is not larger than a first critical value, the second determining process is performed by generating a second bit count based on the sampling signal and the ideal bit stream.

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7. The method of claim 6, wherein the second determining process is performed with the aid of an AND operation over the sampling signal and the ideal bit stream, the second bit count is generated by counting the number of bits having the same logic level between the sampling signal and the ideal bit stream.

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8. The method of claim 6 further comprising:
    comparing the second bit count with a second critical value; and
    determining that the ADIP unit is not included in the calculation result when the second bit count is less than the second critical value.

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9. The method of claim 6 further comprising:
    comparing the second bit count with a second critical value; and
    determining that the ADIP unit is included in the calculation result when the second bit count is not less than the second critical value.

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10. A method of determining whether an ADIP unit is included in a calculation result, the method comprising:
    partitioning a sampling signal into a plurality of subdivisions of the sampling signal;
25   performing a first determining process by calculating a plurality of first bit counts based on each of the plurality of subdivisions of the sampling signal and each of a plurality of corresponding ideal bit streams; and
    comparing each of the first bit counts with each of a plurality of corresponding first critical values to determine whether the ADIP unit is included in the
30   calculation result;
    wherein when the first determining process related to the first bit counts is not able to determine whether the ADIP unit is included in the calculation result, a second

determining process is performed based on each of the plurality of subdivisions of the sampling signal and each of the plurality of corresponding ideal bit streams.

11. The method of claim 10 further comprising:

generating a non-phase-modulated target clock signal based on a phase-modulated input signal; and

generating the calculation result by performing an XOR operation over the target clock signal and the input signal.

12. The method of claim 11 further comprising:

sampling the calculation result at twice the frequency of the target clock signal to generate a sampling signal.

13. The method of claim 11, wherein the input signal is a wobble signal of an optical disc and the target clock signal is a wobble clock.

14. The method of claim 10, wherein each of the first bit counts is generated by performing an XOR operation to count the number of bits having different logic levels between each of the plurality of subdivisions of the sampling signal and each of the plurality of the corresponding ideal bit streams.

15. The method of claim 10, wherein when at least one of the first bit counts is larger than the corresponding first critical value, it is determined that the ADIP unit is not included in the calculation result.

16. The method of claim 10, wherein when every one of the first bit counts is not larger than the corresponding first critical values, the second determining process is performed by generating a plurality of second bit counts based on each of the plurality of subdivisions of the sampling signal and each of the plurality of the corresponding ideal bit streams.

17. The method of claim 16, wherein the second determining process is performed

with the aid of an AND operation over each of the plurality of subdivisions of the sampling signal and each of the plurality of corresponding ideal bit streams, each of the second bit counts is generated by counting the number of bits having the same logic level between each of the plurality of subdivisions of the sampling signal and

5   each of the plurality of the corresponding ideal bit streams.

18. The method of claim 16 further comprising:

comparing each of the plurality of the second bit counts with each of a plurality of corresponding second critical values; and

10   determining that the ADIP unit is not included in the calculation result when at least one of the second bit counts is less than the corresponding second critical value.

19. The method of claim 16 further comprising:

15   comparing each of the plurality of the second bit counts with each of a plurality of corresponding second critical values; and

determining that the ADIP unit is included in the calculation result when every one of the second bit counts is not less than the corresponding second critical value.

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20. The method of claim 10, wherein the ideal bit stream includes an ADIP sync unit or an ADIP data unit.

21. The method of claim 10 being applied to an optical disc drive system.

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